WHAT’S IN A HEATING AND COOLING SYSTEM

Whether it’s a Ducted unit, an underfloor Gas heating unit, Single Split – Multi Split – VRV; it’s only a part of the overall system. Many other items make the system complete. If you have a Daikin, Brivis, Mitsubishi etc….does not mean all the other components are made or supplied by them.

You have many choices in what you see as a finished product, some are functional, aesthetic, practical, necessary and some are a requirement. You will get a better understanding of what goes into making up a system and the choices available for any type and any budget.

• FLEXIBLE DUCT (INSULATED)

• RETURN AIR GRILLES
  ✓ HALF CHEVRON TYPE
  ✓ EGG-CRATE TYPE
  ✓ FLANGELESS RETURN TYPE
  ✓ BAR RETURN TYPE
  ✓ FLOOR TYPE – HEAVY DUTY

• GRILLES, REGISTERS, DIFFUSERS
  ✓ ROUND DIFFUSERS
  ✓ SQUARE DIFFUSERS
  ✓ SLOT DIFFUSERS
  ✓ LINEAR BAR GRILLES
  ✓ FLANGELESS FINE LINE BAR DIFFUSERS
  ✓ JET DIFFUSERS and ADJUSTIBLE AIR NOZZLES

• FLOOR GRILLES
  ✓ STANDARD METAL FLOOR GRILLES
  ✓ DECORATIVE FLOOR GRILLES
  ✓ PLASTIC FLOOR GRILLES
  ✓ ALUMINIUM FLOOR GRILLES

• DOOR RELIEF GRILLES

• ZONING

• ZONED CONTROLLERS
  ✓ POLYAIRE ZONE STATIONS
  ✓ DAIKIN ZONED CONTROLLERS
  ✓ BRIVIS NETWORKER 516 ZONED CONTROLLER
FLEXIBLE DUCT (INSULATED)

Flexible duct, known as “flex”, comes in a variety sizes and R values. Typically, flexible plastic or metalized Mylar over a metal wire coil to make it round. The insulation is usually glass wool or polyester fibre for thermal insulation (rated from R0.6 – R2.0). The outer skin is a protective layer surrounding the insulation, and is usually composed of polyethylene, metalised PET or plastic. Duct should be manufactured to meet the requirements of the building code of Australia and all relevant Australian standards and statutory requirements. Some manufactures offer duct with fire retardant / rating values and certification.

Flexible insulated duct is commonly used throughout Australia on residential system installation, mainly on reverse cycle and gas heating systems. This is what conveys the air from within your home to the unit and then conveys the heated or cooled air into the home through the registers. The quality, R value, sizing and installation of the ducting has a HUGE impact on the performance of your system.

The Higher the R value rating of the duct, the lower the losses through the duct into the hot roof space (upto 65C) or cold underfloor area. The type of insulation is not an issue or the thickness of; the only measure should be the R value just like home insulation!
R0.6 rated fire retardant duct

R1 rated fire retardant duct

R1.5 rated fire retardant duct

R2 rated fire retardant duct
RETURN AIR GRILLES

Return air grilles (most commonly fitted with a filter), draw air from within the home or conditioned area, passes through a filtering process before entering the unit to be heated or cooled to the desired temperature. You could have multiple returns depending on the system installed or as unit access requirements dictate.

Mainly constructed from lightweight aluminium powder coated white finish, these can be located in a ceiling, door, and wall or in joinery. For floor mounted types, these are made from heavy duty pressed metal sections to withstand traffic.

The most common and popular type is the ceiling “egg-crate” design offering a free area of approximately 90%. They come in many different sizes and should be correctly designed and sized to suit the airflow volume of the system.

*Available in any size and colour combination you require*

HALF CHEVRON TYPE
Wall / door / Joinery mount typical

Any colour, size and style

**EGG-CRATE TYPE**

Purtech brand ceiling mounted

Typical egg-crate ceiling mount type

*Available in any size (white only)*
FLANGELESS RETURN TYPE

Available in any colour, size or style

BAR RETURN TYPE

Replaceable filters

Suits all types of return air grilles
Available in any colour, size or style

GRILLES, REGISTERS, DIFFUSERS

Any fixture that distributes the heated or cooled air throughout your home is called either a GRILLE, DIFFUSER or REGISTER, however many alternatives are available. We will advise you on what's best for your application.

Many considerations need to be made to select the correct type of diffuser. Various styles, materials, finishes, shapes are available. Some choices are functional, some are decorative; some are chosen for aesthetics and others for price.

Construction is usually plastic, aluminium, metal, stainless, timber and cast iron. Plastic diffusers are generally more common and a better option for cooling (they don't condensate). Other grilles offer a greater variety and are much better looking.

See from the choices below some examples of what you can select. If it's not here, we can custom make it!
ROUND DIFFUSERS

- Down-Jet type for heating (ceiling)
- Standard type for heating / cooling (ceiling)
- Ceiling heritage style
- Automatic adjusting Ceiling Outlet for heating / cooling

SQUARE DIFFUSERS

- MDOX plastic type adjustable direction
- Aluminium Bevel edge 4 way ceiling type
More Multi-directional MDOX type

Showroom display (some not all!)

Aluminium Bevel edge 3 way (rectangular)  Aluminium Bevel edge 3 way
SLOT DIFFUSERS

The Linear Slot Diffuser is a superior, modern and flexible mode of air distribution.

The Air Grilles Slot Diffuser can be manufactured from 1 to 12 slots wide. Slot widths may be either 20-mm or 25-mm. It is recommended that the slot diffuser, which is manufactured exclusively of aluminium extrusion, should not exceed a one piece
length of 2 metres. For continuous slot diffuser assembly, aligning strips are provided for ease of installation.

The provision of bends to specified angles is possible and the ends may be straight cut or mitred as required.

Condensation may form on these diffusers, careful consideration must be given!
Single / Double / Multi Direction Deflection
Available in any colour, size or style

FLANGELESS FINE LINE BAR DIFFUSERS

Flangeless Grille diffusers have been developed to keep pace with contemporary interior designs. These grilles are versatile and are designed for sidewall applications offering a new approach to interior air delivery.

For supply and return air applications, these flangeless frame grilles are the least intrusive sidewall type on the market.
Flangeless mitred return supply diffuser

Above kitchen joinery

Another Flangeless diffuser in a kitchen
Available in any colour, size or style

JET DIFFUSERS and ADJUSTIBLE AIR NOZZLES

Jet Diffusers are designed to provide an attractive option for heating and cooling large areas. These diffusers are perfect for situations where large supply air quantities and throw distances are required, constructed from three cones that provide a uniformity of appearance through the range.

Adjustable air supply nozzles are applied in the supply of cold or warm air in rooms where long throw distances and low noise operation are required. By combining individual nozzles into a block, the throw distance is increased proportionally. There is a choice of several mounting methods.

Supply nozzles VS-5 are adjustable. The air jet can be adjusted:
• manually, in all directions, within a ±30° range
• by means of an electric motor, in horizontal and vertical direction, within a ±30° range

FLOOR GRILLES
There are two common standard sizes –

- 350 x 150 (large) suitable for air conditioning systems or a dual gas / cooling system
- 300 x 100 used mainly for gas ducting heating only due to lower airflow delivery.

*We recommend you always install the larger grilles if you plan to install Add-on Cooling in the future and ensure you utilise upgraded duct sizes at the initial installation.*

The range of floor grilles is almost endless, many styles, colours, finishes, material construction, plastic, metal (brass), aluminium, cast iron, timber and stainless steel. Here is just a few samples -

**STANDARD METAL FLOOR GRILLES**

![Standard Pressed Metal - Many colours available](image)

**DECORATIVE FLOOR GRILLES**

![Antique Brass](image)  ![Matt Brass](image)
Brass plated type

Stainless

Satin Finish

Oil Rubbed Bronze

Nickle Plated

Brushed Nickel

Oil Rubbed Bronze

Brushed Nickel
PLASTIC FLOOR GRILLES

Plastic - Many colours and both sizes

ALUMINIUM FLOOR GRILLES

Aluminium Bar floor diffusers

Can be powder coated any colour
Can be custom made to any width, length and bar spacing configurations

More Showroom samples

DOOR RELIEF GRILLES

Door relief grilles are designed for use in doors where constant air transfer with vision, non-vision or no light transfer is required. Constructed from aluminium and powder coated finish complete with backing frame to suit door thickness of 30mm to 75mm.

Under-Door Relief bar Grille
Light Proof Door Relief Grille

Fine Blade Door Relief Grille
Available in any colour, size or style

ZONING

A zoning system provides you with the flexibility to cool or heat independent areas. A zone can be a single room, like a lounge room or a designated set of rooms, like children’s bedrooms. You can also condition your entire home. Some zoning system can detect how many zones you are currently operating and automatically adjust its output to match the requirement. This means that if you only want certain parts of your home heated or cooled, you can, while not wasting energy.

Polyaire 24Volt Zone damper / barrel

Polyaire Zoned Quick Fix Fitting
ZONED CONTROLLERS

Zone controllers have the zone switching built-in with innovative features to give you the precise control you need for comfort across your whole home. This allows you to tailor your ducted system to your exact needs, for absolute comfort. The Brivis and Actron controller even allow you to set different temperatures in the different zones.

POLYAIRE ZONE STATIONS
DAIKIN ZONED CONTROLLERS

Daikin BRC24Z4 4 x zones
Daikin BRC24Z8 8 x zones
Daikin BRC230Z4 with zones attached

BRIVIS NETWORKER 516 ZONED CONTROLLER
Networker 516

Controls up to 4 zones with sensors

ACTRON ZONED CONTROLLER

Up to 8 zones can be switched
NON – ZONED CONTROLLERS

Most standard controllers give you simple, one-touch control over your in-home comfort. Some features included are:

- Clear, backlit display with large, easy to read text
- Weekly schedule timer, so you can program on and off times to suit your lifestyle
- Auto fan speed to maintain temperature
- Auto restart after power failure
- Self diagnosis for faults
- Touch screen
- Built-in temperature sensor

Mitsubishi Electric

Mitsubishi Heavy Industries
<table>
<thead>
<tr>
<th>Touch screen type</th>
<th>Standard type</th>
</tr>
</thead>
<tbody>
<tr>
<td>Panasonic</td>
<td>Standard type</td>
</tr>
<tr>
<td>Fujitsu</td>
<td>Standard type</td>
</tr>
<tr>
<td>Daikin</td>
<td>BRC230Z8</td>
</tr>
</tbody>
</table>
**WI-FI CONTROLLERS**

The Daikin Wi-Fi Controller will allow you control of your Daikin Sky Air or Ducted Air Conditioner directly from your smartphone (iPhone or Android), either directly via Wi-Fi or remotely over the internet*.

Compatible with Daikin Inverter Ducted and Sky Air Systems, the Daikin Wi-Fi controller gives you easy control of key functions such as On/Off, Temperature, Mode and Fan Speed. Compatibility with the Daikin BRC series Zone Controllers is also planned, for extended functionality such as Zone Control.
EXTERNAL LOUVERS

Primarily for plant rooms housing air conditioning plant. Available in a wide range of options; shapes, configurations, materials, finishes and coatings - to meet the requirements of almost any project from a screening perspective. Aerodynamic efficiency reduces air intake and air discharge resistance and therefore saves operating cost.

High resistance to rain ingress for enhanced weather protection. Manufactured from corrosion-resistant materials for durability and maintenance-free operation.

If noise reduction is required, acoustic louvre panels may be used. Plant room ventilation louvre systems can be configured to provide the solution to your specific requirements. With a plant room ventilation louvre, the possibilities are endless.

Also a louver door system is available, robustly constructed in extruded aluminium box section to provide the strength required to hang a large louvre door. Designed to incorporate all of the features that you could think of in an architectural door and still be compatible with an entire range of outside louvers.

Horizontal weather-proof
Available in any colour, size or style

EXTERNAL PIPE COVERINGS
We only use and recommend metal trunking made from Colorbond on the external walls. Plastic capping will not last the distance and does not come in many colour options to blend in with your environment. You can match the colorbond trunking to suit your wall, downpipe or gutter colours.

This covering is used to cover and protect the refrigerant piping, insulation, wiring and drains between the indoor and outdoor units from the elements.


Over 20 colours to choose from
CONDENSOR MOUNTS

Air conditioning outdoor units and external gas furnaces can be placed on precast concrete slabs with anti-vibration mounts, or poly feet with anti-vibration mounts. Also, these units can be sat on many different types of brackets such as heavy-duty galvanised and slim-line foldable “L” shape in powder coat or stainless steel finish, all with anti-vibration mounts.
Heavy duty galvanised brackets